

What is claimed is:

1. An optical receiver comprising:
an avalanche photodiode having a multiplication factor;
a voltage source for supplying a bias voltage to the avalanche
5 photodiode;
a temperature sensor for monitoring a temperature of the avalanche
photodiode;
wherein the multiplication factor of the avalanche photodiode is kept
substantially constant by adjusting the bias voltage to the avalanche
10 photodiode based on the temperature monitored by the temperature sensor.
2. The optical receiver according to claim 1, further comprising
a controller for controlling the voltage source; and
a reference generator for outputting a reference voltage to the
15 controller based on the temperature monitored by the temperature sensor.
3. The optical receiver according to claim 2,
wherein the temperature sensor is integrated in the reference
generator.
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4. The optical receiver according to claim 2,
wherein the reference generator further includes a register and a
digital-to-analog converter, the register storing a relation between the
reference voltage and the temperature in a digital form, and
25 wherein the reference generator retrieves the register by indexing the
temperature and outputs the retrieved reference voltage converted into an
analog form by the digital-to-analog converter to the controller.

5. The optical receiver according to claim 5,
wherein the reference generator further includes a digital interface
for setting the reference voltage and the temperature in the register.

5 6. The optical receiver according to claim 1, further comprises
a controller for controlling the voltage source; and
a voltage divider for dividing the bias voltage output from the voltage
source and outputting a divided voltage to the controller,
wherein the voltage divider includes a variable resistor having a
10 resistance controlled by the temperature sensor.

7. The optical receiver according to claim 6,
wherein the temperature sensor is integrated in the variable resistor.

15 8. The optical receiver according to claim 6,
wherein the variable resistor further includes a register for storing
resistance values corresponding to temperatures, the variable resistor
retrieving a resistance value from the register based on the temperature
monitored by the temperature sensor.

20 9. A method for manufacturing an optical receiver including an
avalanche photodiode having a multiplication factor, a temperature sensor
for monitoring temperatures, a voltage source for supplying a bias voltage to
the avalanche photodiode, a controller for controlling the bias voltage and a
25 reference generator for providing a reference voltage based on the
temperature monitored by the temperature sensor to the controller, the
controller controlling the voltage source based on the comparison of the bias
voltage to the reference voltage so as to maintain the multiplication factor of

the photodiode substantially constant to temperatures, the method comprising the steps of:

measuring reference voltages in at least two specific temperatures different to each other so as to maintain an output of the avalanche

5 photodiode substantially constant; and

calculating reference voltages corresponding to temperatures except for the specific temperature based on the measured reference voltage.

10. The method for manufacturing the optical receiver according to
10 claim 9, the optical receiver further including a register for storing data that relates the reference voltage to the temperature, the method further comprising the steps after the calculation:

setting the measured reference voltage and the calculated reference voltage with corresponding temperatures into the register.

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11. The method for manufacturing the optical receiver according to claim 10,

wherein the register and the temperature sensor are integrated in the reference generator.

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12. A method for manufacturing an optical receiver including an avalanche photodiode having a multiplication factor, a temperature sensor for monitoring temperatures, a voltage source for supplying a bias voltage to the avalanche photodiode, a controller for controlling the bias voltage and a
25 voltage divider for dividing the bias voltage based on the temperature monitored by the temperature sensor and providing the divided voltage to the controller, the controller controlling the voltage source so as to maintain the multiplication factor of the photodiode substantially constant to

temperatures, the method comprising the steps of:

measuring resistance values of the variable resistor in at least two specific temperatures difference to each other so as to maintain an output of the photodiode substantially constant to the temperature; and

5 calculating resistance values corresponding to temperatures except for the specific temperature based on the measured resistance value of the variable resistor.

13. The method for manufacturing the optical receiver according to
10 claim 12, the optical receiver further including a register for storing resistance values of the variable resistor and the corresponding temperatures, the method further comprising the steps after the calculation:

setting the measured resistance values and the calculated resistance values with corresponding temperatures into the register.

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14. The method for manufacturing the optical receiver according to claim 12,

wherein the register and the temperature sensor are integrated in the variable resistor.